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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/774,026	02/06/2004	Yongmin Sheng	65783-0034	7730

10291 7590 12/11/2008

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EXAMINER	
NGUYEN, MADELEINE ANH VINH	

ART UNIT	PAPER NUMBER
2625	

MAIL DATE	DELIVERY MODE
12/11/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/774,026	SHENG ET AL.	
	Examiner	Art Unit	
	Madeleine AV Nguyen	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *amendment filed on 09/09/2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-34* is/are pending in the application.

4a) Of the above claim(s) *15-34* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments filed on September 09, 2008 have been fully considered but they are not persuasive.

a. Applicant remarks that Vian fails to teach or suggest at least "a custom feature matrix comprising operating rules" and "wherein said input values are selected and set from said range of potential input values to result in a desired said output value within said range of potential output values according to said operating rules" as claimed..

In the Abstract of the invention, Vian states, "a control input device for generating control signals, and a generator for generating desired vehicle forces/moments from the sensed vehicle position and motions and operating conditions, and the generated control input signals based on predefined vehicle compensation and control laws. For instance, Fig.5 illustrates the process of determining control effector commands (output parameters). Block 130 is for generating an input matrix (vehicle's position and motions and control input signals) wherein the input values (the desired vehicle forces/moments and the generated control input signals) in step 132 are selected and set from a range of potential input values (in step 130) to result in desired output values (control effector commands) in step 134 according to operating rules in a custom feature matrix (predefined vehicle compensation and control laws), (col. 7, line 59 – col. 8, line 7). In addition, Vian discloses in Fig. 8, the desired moments and forces M_{DX}, M_{DY}, M_{DZ}, F_{DX}, F_{DY}, F_{DZ} (selected input values) are selected from external commands, pilot inputs, sensor inputs, controller commands (input values) in according to command generation, compensation and

control laws (operating rules). Vian states, "The range of the desired forces/moments is determined via off-line simulation ... The sets of desired forces/moments are then calculated as evenly spaced values within the range." (col.8, lines 17-22). The desired moments and forces M_{DX}, M_{DY}, M_{DZ}, F_{DX}, F_{DY}, F_{DZ} (selected input values) are input to a neuron-computing control distribution to generate control effectors command signals (output values). Vian further teaches that the neural network structure (Fig.1) can be implemented as a computer program, and application specific integrated circuit or any other structure that allows the neural network structure to function properly (col. 7, lines 55-59). Since the input values in the input matrix in step 130 are generated according to automatic control inputs, the input matrix is inherently understood that is created through a software application.

Thus, the above Vian's teaching can read on the claimed invention.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vian (US Patent No. 6,317,658).

Concerning claim 1, Vian discloses a device management system (Figs.1A-1B), comprising: a plurality of devices (56, 58), wherein each said device is adapted to perform a

function, wherein each said device function is associated with an input parameter (one of the system states in Fig.1B) and an output parameter (73), wherein each said input parameter includes a range of potential input values (system states), wherein each said output parameter is determined by and associated with at least one said input parameter; and a configuration component (60), said configuration component including an input matrix comprising said input values corresponding to said input parameters (74, 75), wherein said input values are selected and set from said range of potential input values to result in a desired said output value (76), wherein said input matrix is created through a software application (72), (Abstract; col. 4, lines 1-61; col. 5, lines 17-48; col. 6, lines 1-25; col. 7, line 20 – col. 8, line 55).

Vian does not directly teach that the output parameter includes a range of potential output values wherein the desired output value is within the range of potential output values. However, Vian teaches "said neural network controller was trained based on pre-generated vehicle control distribution data." (Abstract); "control effector commands that yield feasible control subsystem forces/moments are calculated based on the generated desired forces/moments, operating conditions and the predefined limits of the control subsystems." (col. 4, lines 47-50); "reduces the generated desired forces/moments by a proportionate amount until a reduced force/moment is within the feasible limits of the control subsystem." (col. 4, lines 56-61). "A neural network system ... by receiving weighted inputs that, …, can be made to produce appropriate outputs." (col. 5, lines 17-20); "the training data includes various sets of desired forces/moments and the predetermined corresponding control effector commands for a wide range of vehicle operation." (col. 7, lines 39-42). It would have been obvious to one skilled in the art at the time the invention was made to consider the output parameter includes a range of potential output values

since the teaching of "pre-generated vehicle control distribution data", "the predefined limits of the control subsystems" and "the predetermined corresponding control effector commands for a wide range of vehicle operation" in Vian are equivalent to a range of potential output values for each input parameter. In addition, Vian also teaches the cases when the output parameters are out of the potential output ranges (failure cases), (106, Fig.2B or failure state, Fig.8) since the output parameters should be "appropriate outputs" (col. 4, lines 47-61; col. 5, lines 17-20; col. 7, lines 21-23).

Vian does not directly teach a custom feature matrix comprising operating rules wherein the input values are selected according to the operating rules. However, Vian teaches, control laws (72, Fig.1B) wherein, "Based on the control laws, the system states are converted to commands for the moments/forces 75 that are desired to best control the vehicle." (col. 4, lines 6-10). For instance, Fig.5 illustrates the process of determining control effector commands (output parameters). Block 130 is for generating an input matrix (vehicle's position and motions and control input signals) wherein the input values (the desired vehicle forces/moments and the generated control input signals) in step 132 are selected and set from a range of potential input values (in step 130) to result in desired output values (control effector commands) in step 134 according to operating rules in a custom feature matrix (predefined vehicle compensation and control laws), (col. 7, line 59 – col. 8, line 7). In addition, Vian discloses in Fig. 8, the desired moments and forces M_{DX}, M_{DY}, M_{DZ}, F_{DX}, F_{DY}, F_{DZ} (selected input values) are selected from external commands, pilot inputs, sensor inputs, controller commands (input values) in according to command generation, compensation and control laws (operating rules). Vian states, "The range of the desired forces/moments is determined via off-line simulation ... The sets of desired

forces/moments are then calculated as evenly spaced values within the range." (col.8, lines 17-22). The desired moments and forces M_{DX}, M_{DY}, M_{DZ}, F_{DX}, F_{DY}, F_{DZ} (selected input values) are input to a neuron-computing control distribution to generate control effectors command signals (output values). Vian further teaches that the neural network structure (Fig.1) can be implemented as a computer program, and application specific integrated circuit or any other structure that allows the neural network structure to function properly (col. 7, lines 55-59). Since the input values in the input matrix in step 130 are generated according to automatic control inputs, the input matrix in step 130 are generated according to automatic control inputs, the input matrix is inherently understood that is created through a software application. It would have been obvious to one skilled in the art at the time the invention was made to consider the predefined vehicle compensation and control laws in Vian equivalent to the custom feature matrix comprising operating rules as claimed since the predefined vehicle compensation and control laws also comprise operating rules wherein the input values are selected and set according to the predefined vehicle compensation and control laws.

Concerning claims 2-14, Vian further teaches the system of claim 1, wherein said input matrix is modified through said software application and the plurality of devices include a plurality of programmable logic devices, and wherein said plurality of programmable logic devices are located on a vehicle (col. 2, lines 49-52; col. 4, lines 36-42; col. 5, lines 63-67; col. 7, lines 55-59; col. 8, lines 25-29, lines 50-53), (claims 2, 3); a plurality of vehicles and a plurality of configuration components, wherein said plurality of vehicles includes a first vehicle type and a second vehicle type, wherein said plurality of configuration components are substantially identical except for a plurality of configurable characteristics that are configurable through said

software application and said vehicle includes only one said configuration component (col. 1, lines 18-21; col. 2, lines 10-40; col. 3, lines 45-57), (claims 4-5); said plurality of device functions includes at least two of: a body control function, an engine control function, a transmission control function, a power seat function, a door function, an instrument cluster function, an environmental function, an overhead console function, and a power function; or said plurality of device functions include a body control function, an engine control function, a transmission control function, a power seat function, a door function, an instrument cluster function, an environmental function, an overhead console function, and a power function (col. 1, lines 26-34; col. 3, lines 52-57; col. 4, lines 8-19; col. 8, lines 8-10; col. 9, lines 5-22), (claim 6-7); the configuration component further includes output matrix and a custom feature matrix; or said input matrix, said output matrix, and said custom feature matrix are configured to replace a plurality of nested if statements in a plurality of programming code invoked to perform said device functions; or said output values are stored in said output matrix, wherein said plurality of feature values are stored in said feature matrix, wherein said output values are generated from said corresponding input values in said input matrix and said corresponding feature values in said feature matrix (col. 4, lines 47-61; col. 5, lines 17-19, lines 27-32; col. 7, lines 20-23, lines 39-42; col. 8, lines 6-7; col. 9, lines 57-59), (claims 8-10); said input matrix and said output matrix are set dynamically (col. 4, lines 19-25), (claim 11); said feature matrix is a static feature table (102, 106, Fig.2B), (claim 12); said plurality of device functions includes a first device function and a second device function, wherein said plurality of input parameters includes a first input parameter corresponding to said first device function and a second input parameter corresponding to said second device function, wherein the setting of said first input parameter

changes the range of potential input values for said second device function; or said plurality of devices includes a first device and a second device, wherein said first device function is associated with said first device and wherein said second device function is associated with said second device (col. 4, lines 1-67), (claims 13-14).

Conclusion

3. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Madeleine AV Nguyen whose telephone number is 571 272-7466. The examiner can normally be reached on Monday-Friday 9:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward L. Coles can be reached on 571 272-7402. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Madeleine AV Nguyen/
Primary Examiner, Art Unit 2625

Madeleine AV Nguyen
Primary Examiner
Art Unit 2625

December 12, 2008